

habitat was not thoroughly explored by Storr *et al.* (1975) who worked on foot. Because we were working from boats we were able to search large areas of the river banks in a short time. Additional to the species listed above we observed a number of Great-billed Heron, *Ardea sumatrana*. Storr *et al.* only recorded a single bird.

The only breeding bird we noted was the Osprey, *Pandion haliaetus*. A nest on an islet at the mouth of the Prince Regent River inspected on July 27 contained one newly hatched chick, one egg which was chipping and another egg. A nest of the White-breasted Sea-Eagle, *Haliaeetus leucogaster*, in a *Bombax* tree just outside the Reserve near the mouth of the Roe River contained a single almost fully fledged chick.

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NOTES ON THE REPRODUCTION OF THE SHARK BAY MOUSE, *PSEUDOMYS PRAECONIS*, IN CAPTIVITY

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ABSTRACT

The Shark Bay Mouse, *Pseudomys praeconis*, is known only from Bernier Island off Western Australia. Few specimens have ever been collected. In April 1975 we received two males and one female which subsequently produced two litters in the laboratory. Details of the growth and development of these litters is presented as well as data obtained on the gestation period (28-30 days) and the oestrus cycle (less than 14-16 days).

INTRODUCTION

The Shark Bay Mouse is one of the least known of Australian rodents. Until the collection of the present specimens, it was known from only five or six specimens few of which had been collected in the last fifty years (Robinson *et al.*, 1976). One early specimen was collected from Peron Peninsula W.A. but the species is now known only from Bernier Island in Shark Bay, W.A., an "A" class nature reserve. The mouse is a small (30 g) nondescript rodent greatly resembling the more widespread Plains Rat, *Pseudomys australis*, from which it differs in having a mottled appearance, shorter ears, the apical rather than basal half of the tail darkly pigmented dorsally and in characters of the skull.

Since our only female has died and it is unlikely that further specimens will be obtained for some time, the few details that we obtained of the breeding biology of this rare species are presented here.

MATERIALS AND METHODS

Two males and one female were caught on Bernier Island, W.A. on April 21, 1975 and sent to Adelaide (Robinson *et al.*, 1976). All were adult. One male died shortly after arrival. The remaining pair were housed in a 91 x 61 x 33 cm wooden and glass cage containing two nest boxes. They were fed on mixed bird seed supplemented twice a week with diced vegetables. Water was provided *ad. lib.* The room was under natural lighting with the temperature controlled at $21 \pm 1^\circ\text{C}$.

Except for periods when the female was pregnant, or thought to be, vaginal smears were taken daily, usually in the afternoon, the smears were obtained with a small wire loop, dried in air, and stained with methylene blue.

Young were weighed and measured soon after birth and then at approximately weekly intervals until about 60 days old and then at 102 and 130 days old. Weights were determined to the nearest gram; length measurements to the nearest millimetre.

RESULTS

(a) **Oestrus cycle.** Data obtained on the oestrus cycle are sparse. Copulation plugs were recorded on three occasions: the first the day after the young of the first litter were removed from the parents cage, 50 days after they were born; the second, 14 days later, and the third 16 days after the second. The female was smeared during this time and oestrus was observed only at those times that a copulatory plug was found. The oestrus cycle would thus appear to be less than 14-16 days.

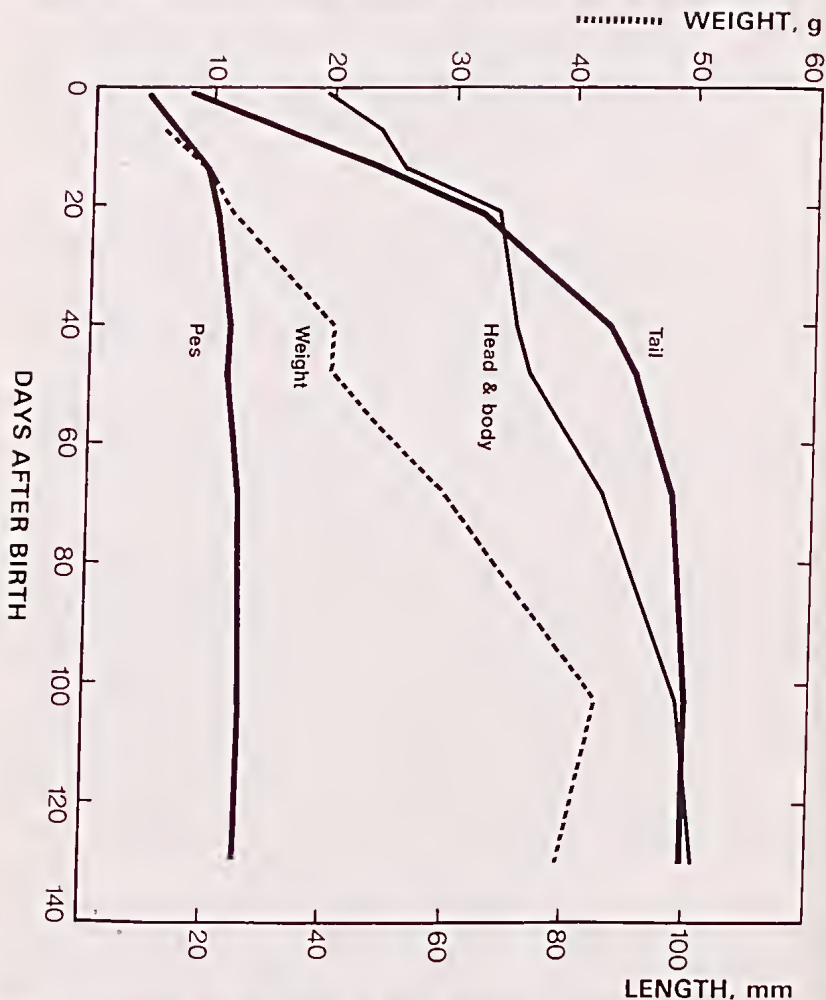


Fig. 1.—Average growth curves of two litters of *P. praeconis* born in the laboratory.

(b) **Gestation length and litter size.** The female had two litters, one of four and one of three young. The first litter was born 30 days after she was paired for the first time. The second litter was born 28 days after a copulatory plug (the third) was observed. In neither case was the female lactating. The gestation length would appear to be around 28 days.

(c) **Growth and development of young.** The average growth rates of head and body, tail, pes and weight of each litter of young are given in Figure 1. Litter one comprised two males and one female (plus one unsexed stillborn) and litter two, three males. The three young of litter one all died on day 50 after birth following a brief illness associated with an intestinal infection. The mother died when the second litter was 22 days old but this seems to have made little difference to their growth rates. The proportionate lengths of head and body length and tail length changed during the first 120 days. On day three the tail was considerably shorter than head and body but grew rapidly (Figure 1) and on day 14 was equal in length to the head and body. Between days 20 and 100 the tail was longer than head and body, after this the normal adult condition of approximately equal lengths was reached. Approximately adult lengths of tail and pes were reached around day 60, but weight and head and body length not until day 100. Both litters grew at approximately equal rates.

Young were born hairless and with the ears folded down. At 11 days the ears were free, the eyes were still closed and they were well furred (adult colouring). The eyes opened at 15 days and by 18 days the apical half of their tails were becoming darkly pigmented dorsally as in the adults. Young were weaned around 30 days. At about this time the young made a twittering noise when disturbed, similar to a call given by the adults. For the first 16 days the young were often attached tenaciously to the teats of the mother and were dragged around by her when she was disturbed. They were also very difficult to remove for examination during this period. Upper and lower incisors had not erupted on day 0 but had done so by day three.

The female stayed with the young constantly until the 16th day when it was observed that she had left the young to visit the male. The male was kept in the same cage as the female and litter but did not share the same nest box until the young were approximately four weeks old. When the female was removed from the cage the male kept the young warm and behaved protectively towards them.

DISCUSSION

Two recent papers (Happold, 1976; Kemper, 1976) have summarised the available information on the growth and development of Pseudomyine rodents. The scattered information on the breeding biology of Australian rodents is summarised in Watts (1974) and Happold (1976).

The growth rate of *P. praeconis* appears to be similar to that reported for other species of *Pseudomys*. The early eruption of incisors, eyes opening around day 15, and approximately 90% adult weight reached by about day 80 are all very 'normal' for *Pseudomys*.

The limited data obtained on *P. praeconis* show that it also agrees with most other Pseudomyinae in having a relatively long gestation period (relative to *Mus* and *Rattus*; it shares with *P. desertor* (Happold, 1976) the distinction of having the shortest known gestation period in Pseudomyine rodents), low litter size and probably also a relatively long oestrus cycle. These characters together with the nipple clinging behaviour of the young are emerging as Pseudomyine characteristics.

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OBSERVATIONS ON QUANDONG TREES

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Part II*

1973

On September 2 the Quandongs at No. 1 group had green fruit on the trees. On the ground a number of fruits had fallen; these were smaller than the green fruits and had reddened. When opened the fruit was clean inside and free of grubs and dirt. In other trees in this group, a little farther north, though the fruits were large and had reddened and fallen to the ground, were not ripe. These trees showed little change on September 7.

The Quandong tree at the Dodder plant had green fruit on September 2, and little had fallen. On September 9 the fruits were hardening and turning yellow-green.

On September 23 a visit was made to Tantagin Rocks, about 25 miles south-east of Merredin. I was in company of Professor van Steenis and Mrs. van Steenis, from Leiden, Holland and Mr. and Mrs. Rutherford, science and language teachers at the Merredin High School. Of a number of Quandong trees near the rocks I noticed in particular two large ones, about 10 ft. high with slender main trunks. They were not compact bushy trees but had straggling much-branched limbs, like Sandalwood, *Santalum spicatum*. The leaves were slender and thin and sparse on the branches; they were not in fruit but had apparently fruited the previous season. Judged by the fallen nuts it appeared to have been a heavy crop. A large number of small Quandong trees about 3½ in. high were under the trees. When some were dug up it was seen that all had germinated from seeds and had a long almost vertical tap root, unattached to any plant or grasses. There was a heavy layer of dead moist leaves on soft reddish soil. The kernels of the nuts, when tasted raw, had a pleasant slightly sweetish taste.

At No. 1 group on September 29 the fruit was ripening. There were some very large fruits on one tree but in the other trees the fruit was still in the green stages. On October 8 the fruit in this group had ripened very quickly and appeared to be at the peak. However two small trees still had green fruit on them.

On the same day, October 8, I travelled about three miles beyond the Quandong tree at the Dodder plant and came on a large number of Quandongs in virgin country on the Old York Road. On the north side of the road, in heavy *Eucalyptus* country, were a fair number of large Quandong trees bearing green fruit. The land on the south side of the road was drier and among the *Eucalyptus* and *Acacia* were a great number, well over a hundred, of mainly young Quandongs resembling

*Continued from p. 17